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Remarks of
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"E Pluribus Unum -- Creating Integrated
Bulk Power Markets In the U.S."

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Ladies and Gentlemen:

I.

Permit me to extend my thanks to Einar Hope and Lars Bergman, the Norwegian Association of Energy Economics, and the International Association for Energy Economics, for inviting me to address this distinguished audience.

My assignment today is uncomplicated. From the perspective of a national regulator, I plan to describe for you the challenges presented by restructuring an electricity industry that is remarkably diverse and undergoing a fundamental transformation, technologically, operationally, and in its corporate makeup. Note that I did not call this process deregulation; local and federal governments are not yet prepared to abandon the field; competitive markets are not performing flawlessly; the pricing of transmission services is still more art than science; and the network of wires upon which competition depends is still a monopoly enterprise.

Yet, the prevailing (but by no means unanimous) strategic direction in the U.S. is to establish competitive energy markets. I think it is even fair to say that competition in wholesale electric markets is now widely endorsed even by those who oppose retail competition. There is a formidable task ahead, I

believe. It is to develop and then pursue a persuasive vision of 21st century electricity markets -- a vision quite different from the patchwork of rules and market models that have created demonstrable inefficiencies in the past. Because bulk power markets operate physically and commercially in virtual disregard of the limitations of state and local law, or even international boundaries, that vision of the new bulk power market necessarily entails the trade and delivery of electrons instantaneously across multiple jurisdictions without obstruction –- physical, financial, or political. So, to realize this vision, we must be willing to impose on large regions a higher degree of uniformity in pricing, reliability standards, commercial transparency, methods of planning and expanding facilities, congestion management, and so forth, than has previously been the case.

In many respects, the United States and the European Union share a common history and fate. The

U.S. is a confederation of states, as is the E.U. In fact, our motto -– "E Pluribus Unum" or From Many, One –- represents a modern social and political objective on both sides of the Atlantic. In both cases, our respective electric power industries originated as local economic principalities that have only lately begun to work as an integrated system at the bulk power level. Still, like pre-Bismarck Germany or the Balkans at the end of the 19th century -- Americans love the term "balkanize" -- there is a bewildering number of operational arrangements and regulatory authorities in the market; they stand as an obstacle to the achievement of large, open power markets and the benefits that flow from them.

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Let me illustrate the diversity of the U.S. electricity business and suggest the problems we face.

There are over 3000 electric utilities in the U.S. -- investor-owned, municipally-owned, member-owned rural cooperatives, and large federally-owned utilities. Each is governed differently and is subject to very different kinds of regulation or oversight -- often at both state and federal levels. Until recently, they all shared a common pedigree: they were monopolies established by law, insulated from any competition for customers, and used by state and local officials as tax collectors for certain social beneficiaries. While major utilities vertically integrate the transmission, distribution, and generation functions, the greatest number are small and transmission-dependent. Two-thirds of utilities have no generating capacity and must buy power to serve customers' needs. There are, however, 10,000 generators in the U.S., supplying widely varying portions of the Nation's 770 Gigawatts of capacity. Many of these are "non-utility" generators or unregulated utility affiliates.

Servicing this diverse generation sector is an [Slide 3] important network of essential facilities: 175,000 miles of high voltage transmission lines (worth $61 billion at book value). There are, in reality, just three integrated transmission "machines" -- the Eastern and Western Interconnections and Texas -- over which utilities in each grid buy and sell among themselves. However, they are subject to the requirements of 152 sub-regional control areas.

[Slide 4] Where utility operations and the relationship between resources and load were once primarily local, inter-utility and interstate commerce have tended to enlarge a utility's operations and expand its commercial relationships. As competition and electricity demand have grown, the number of wholesale transactions has dramatically increased –- an amazing 400 percent since 1996. Electricity markets that are now developing cannot have their size and operations constrained by corporate boundaries, congested interfaces, use of different pricing models, and localized regulatory restrictions. In reality, the grid makes all market participants mutually dependent at the wholesale level. Yet, use of that system is still governed largely by local or sub-regional interests. Thus, the future of the transmission grid remains the single most important, misunderstood, and unresolved public policy issue bearing on our domestic infrastructure.

In sum, although most Americans do not recognize it, competitive bulk power markets have become a critical national economic objective. They remain far from inevitable, however. If I have one message for you today, it would be this: no matter how well-developed and supported the economic support for a competitive market or how urgent the need for reform and improvements, history, politics, ideology, and law will almost inevitably get in the way of making the necessary changes. Count on it.

We in the U.S. began to address the technological and institutional inadequacies of the old utility model sometime ago. In 1996, the Commission ordered the transmission-owning utilities subject to its jurisdiction to provide third parties with non-discriminatory open access to the grid and a quality of service comparable to the service that utilities provided their own generators. This was Order No. 888. Its open access and comparability principles echoed those the Commission had adopted earlier for natural gas pipelines. And, just like natural gas pipeline open access, Order No. 888 has proved to be only a partial solution to undue discrimination, market power, and a lack of transparency.

[Slide 5] In the four years since Order No. 888, access to market information over electronic media has improved, ten percent of all generation facilities have been sold to entities who generally want to compete with traditional utilities for markets, and marketer activity has accelerated. We have also seen unprecedented levels of corporate consolidation and strategic realignments. Competition has tended to make margins slimmer at every stage of the value chain. It has driven down commodity prices. It has forced companies to secure profitability, not from monopoly, but from innovation, new services, and cost-cutting. This should benefit consumers.

However, problems have arisen. Electric demand, once stagnant for years at a time, is booming, wiping out reserve margins. The wholesale market has become so dynamic, the transmission system has been subject to many unexpected stresses and congestion. The exercise of market power, the lack of new transmission capacity, the diversity of market participants, and regulatory restrictions have also conspired to cause problems that now demand both market and public policy solutions.

Today, we must decide how to promote more efficient management of congestion on transmission facilities, how to ensure accurate determinations of available transmission capacity (ATC), how to deal with parallel path flow issues, how to address the prevailing uncertainty associated with transmission planning and expansion, how to eliminate pancaked transmission rates, and how to thwart the temptation of transmission providers to unduly discriminate in favor of affiliated power market participants.

II.

Against that background, let me be more specific about what American policymakers in general, and the FERC in particular, have encountered and how we propose to overcome the obstacles. To be sure, there are powerful forces that will resist change. In the eyes of many, any measure of additional regulatory intervention, even to foster development of integrated power markets, is suspect. For others, nothing short

of central planning or complete local control can equitably and effectively serve the common needs of electricity consumers. Electric "deregulation" opens countless opportunities to be dogmatic. Nevertheless, I believe that we must navigate between these extremes to promote change. I need not tell you that the advantages of incumbency are never easily abandoned. Utilities retain market power and brand recognition and do not wish to forfeit these advantages. They insist, and American policymakers have generally already agreed, that consumers must reimburse them for investments that might be left without markets in the world of competition. It is no wonder that restructuring has slowed at both wholesale and retail levels. However, there are features of the American industry that could weaken competition even more seriously.

First, it is important to understand that the electricity industry in the U.S. is already becoming

less regulated as new entities are created to participate in providing energy services, risk management tools, and supply alternatives. This is a positive development. There are few reasons for regulators to intrude into many aspects of the business. In other areas, however, the Commission's ability to develop competitive markets, to open the entire transmission network, or to monitor the fairness and efficiency of emerging markets is restricted by a [Slide 6] lack of jurisdiction. The market is composed of thousands of entities that participate in or depend on the wholesale market and the transmission system. Only a portion engage in sales for resale that are jurisdictional. Most of those that are jurisdictional have been awarded market-based rate authority. Perhaps [Slide 7] more importantly, the law places fully one-third of the integrated transmission network beyond the Commission's authority and therefore beyond the reach of the open access requirements of Order No. 888. That is a critical gap.

Network industries respond best to uniformity in law and policy. Who would suggest, for example, that the Internet would work better if it were owned by multiple private competitors and operated in accordance with various local or regional rules and customs? Of course, until recently only electrical engineers were accustomed to thinking of transmission as a single integrated network and the platform for a competitive market. That recognition has caused my agency repeatedly to ask the Congress to make all transmission subject to our jurisdiction and thus to the same rules of open access and comparable service. Without that uniformity, open access principles will have limited effect. Network integration requires movement away from a multiplicity of requirements and local commercial barriers toward standardization and openness. Our goal: E Pluribus Unum.

Change of this kind will not be automatic, however. The fault is at least partly government's. A patchwork

of multiple, and often overlapping, regulatory authorities oversees the U.S. electric industry. Each has its importance and legitimacy rooted in history. Forty-seven state public utility commissions (Nebraska's utilities are locally-governed public power entities) and the FERC in Washington have regulated the costs and services and corporate decisions of investor-owned utilities for most of the last century. That regulation is roughly divided between state-regulated retail markets, including direct power sales and distribution, and the sale for resale or bulk power market that is regulated federally along with transmission.

Pragmatic accommodations once made this elaborate system of oversight work quite effectively. For example, with the tacit agreement of the FERC, vast amounts of high voltage transmission were included in state retail rates because use of those facilities were required by utilities to meet their service obligations to native loads under state and local law. Today, however, this so-called "bundled retail transmission" is the source of policy disputes and litigation. If, as the Commission's Order No. 888 generally envisions, transmission must be made available to all users under comparable rates and terms for competitive markets to function, the service priority enjoyed by the transmission owner's native load uses will inevitably cause difficulties. The fate of transmission capacity that has been dedicated to serve native loads, subject to state regulation, remains a fundamental jurisdictional question that, depending on the outcome, could dramatically affect whether there is a real opportunity for bulk power competition.

There are other state-federal issues that cloud the prospects for open markets, even in states that have already endorsed the idea of wholesale competition and some form of independent grid operator. The electric industry is especially vulnerable to price volatility

during extreme conditions because electricity cannot be stored and short-run supply and demand are highly price-inelastic. But, recent price spikes and other travails in California and New York can, in my view, be traced in part to the desire of state officials to govern and "manage" the wholesale market in ways that first and foremost favor the citizens of only that state. There is no better evidence that the best intentions to protect domestic utilities or retail ratepayers can produce the worst kind of market economics.

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A related set of factors is what I would call the ethos of deregulation and devolution. Because the Commission has chosen to allow market rates for wholesale sales of power, it appears incongruous to critics of government for us to be aggressively advancing comprehensive restructuring policies. They would prefer to await the natural evolution of market

forces. In addition, there are those still eager to subject the operations of even the interstate wholesale market to state and local law, priorities, and preferences. I want to be clear that the FERC has for several years acknowledged that it is prepared to embrace regional market differences and defer to states and market participants wherever possible. Despite this, any federal proposal that would subject utility operations in multiple states to a single set of market rules in the interest of competition has some serious obstacles to clear. Efforts to curb market power structurally, whether by separating control of transmission from other utility functions -- by RTOs, divestiture, capacity reservation tariffs, or other means –- are often construed negatively as a seizure of authority from states and a "federalization" of the industry. That view is often reinforced by some very legitimate concerns -- concerns about cost shifts that may occur when high-cost and low-cost transmission facilities are merged into one large network with a single rate, or the concerns among low cost states (which may have a substantial hydropower or coal generation resource base) that their cheap power will be exported to other markets willing to pay a premium for that power.

However legitimate, these fears and opinions have predictable results. They have already paralyzed Congressional efforts to promote competition. They have dissuaded us as federal regulators from requiring the creation of regional transmission organizations or taking other available measures that could yield efficient, transparent, and uniform wholesale markets more quickly. In my view, the resulting delay in erecting a workable market structure leads to uncertainty, price volatility, declining market values for transmission facilities, and disinvestment in an industry which is already experiencing troubling generation and transmission capacity shortages anyway.

Several other well-understood obstacles to large, regional power markets threaten to slow progress toward competition. The traditional utility regulatory model supported and even encouraged multiple pricing schemes, pancaked transmission rates for transactions across multiple systems, and small markets. Illiquid markets, a paucity of useful market information, and a lack of central dispatch were not problems in the static environment of a regulated monopoly. Today, however, they have clearly become problematic.

[Slide 9] Our regulatory task is further complicated by the market realities we have inherited. In the U.S., where the booming digital economy is demanding new levels of reliability and increases in electricity supplies, we are suddenly confronting major supply/demand imbalances. Reserve margins are uncomfortably low. Investment in new transmission is lagging and plans for building new generation cannot keep up. Changing transmission usage patterns have increased the use of

transmission line loading relief procedures (TLR) (400 TLR actions in 1999, equaling 8000 MW of curtailment), creating commercial risks and uncertainty. Moreover, in part because about half of our states have not opened their retail markets and given retail consumers a choice of power suppliers, the task of sending appropriate price signals and obtaining a demand-side response remains very difficult.

All this has contributed to price volatility in peak periods in certain regions of the country, demonstrating once again that transmission open access is only part of the puzzle and that real economic benefits must await structural changes in the industry. It is critically important that power markets be allowed to work, even though the pressure is great to cap rates or reverse course at the first sign of a market problem. Before relying exclusively on markets, however, we must first do our best to ensure that those markets are capable of operating effectively, so that

competition can discipline the price of the commodity and the behavior of rent-seeking market participants.

Recent events have cast doubt on our ability to prevent aberrant prices in these complex markets. Price spikes are a timely reminder that, while we are involved in the intoxicating work of re-inventing a major industry, we must look diligently after consumer needs throughout this difficult transition. We must do so because electricity is so essential to people that it cannot always be rationed purely by price. We must also do so to ensure that competitive market initiatives are not summarily reversed before their benefits to the public become real and apparent. For that reason, I was pleased recently that, in contrast to skyrocketing prices in the over-heated California market, there was news of billions of dollars in savings to Pennsylvania ratepayers from the restructuring that has taken place in that market. We need more such cases.

III.

Four years after Order No. 888 and the advent of transmission open access, progress toward wholesale competition has stalled. Incrementalism had failed in practical terms. The Commission therefore took a significant additional step toward realizing the promise and potential of transmission open access.

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In Order No. 2000, issued last December, the Commission did more than adopt new policies; it set forth a vision of the future of the wholesale electric power industry, one based on large regional markets that discharge key functions more efficiently than small or constricted markets. Centralization of grid operations -- decentralization of other sectors. We decided that reliability, system operations, grid expansion, pricing, and information exchange would support efficient bulk power markets <u>only if</u> they were managed across multiple systems, <u>i.e</u>., regionally.

Central to our vision is the regional transmission organization or RTO which presides, independent of all market participants, over operation of the grid.

Order No. 2000 is bold but it is also remarkably unprescriptive. It accords transmission-owning utilities a limited-time-only opportunity to contribute their transmission assets to separate grid management organizations and to help redesign the competitive landscape, voluntarily. It accords regional market participants a voice in market design. RTOs may be for-profit or non-profit. They can be an independent system operator (ISO), a transco, or a hybrid structure. In fact, the ISO and transco concepts are competing fiercely to demonstrate their superiority in incenting growth or ensuring reliability, but it appears that different regional preferences will vary for the near future.

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Under Order No. 2000, RTOs can own transmission facilities, lease them, or operate facilities owned by others. However, each RTO must in any event satisfy four cornerstone characteristics, at a minimum. It must: (1) be independent of market participants; (2) be big enough and so configured as to reflect actual operation of the market; (3) actually have operational control of the regional grid; and (4) be responsible for short term reliability. In addition, Order No. 2000 urges that each RTO perform eight functions:

tariff administration and design

congestion management

parallel path flow

ancillary services

OASIS (our name for an electronic reservation system) - (<u>e.g</u>., available transmission capacity)

market monitoring

transmission system planning and expansion, and interregional coordination

[Slide 12] In a nutshell, RTOs will change this to this. With better congestion management and central control of the system, regional markets will change from this to this. Again, E Pluribus Unum.

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RTOs are not an end in themselves, of course. They are based on two key assumptions: (1) bigger markets work better; and (2) a transmission network operated independently of market participants can make the system perform more fairly and more efficiently. These assumptions can be challenged. However, I believe that those assumptions will be proven true in the next two or three years, if RTOs are given a real chance. We see RTOs as the platform for pricing innovation, better price signals, and inducements to good grid operation. We expect them to develop better ways to manage

congestion. And, RTOs may minimize the opportunities for undue discrimination and restore a level of trust among competitors that the grid is being operated fairly on everyone's behalf. With RTOs, the pancaking of access charges within a region can be eliminated. And, with the advent of RTOs, we expect that a stand-alone transmission business will emerge that thrives on increasing throughput, enhancing reliability, and serving customers.

RTOs will make better use of existing facilities. But, in Order No. 2000, the Commission also decided to focus on the need to stimulate additional investment as well, partly because it believes that sufficient transmission capacity, while a relatively small part of any retail rate, is critical to sustain competition. An approved RTO would be eligible to seek a rate moratorium (based on existing rates that are state controlled); a formulary rate of return or other innovative approach to setting its equity returns; risk

premiums; or non-traditional depreciation rates for new investment; levelized recovery of capital costs; or performance-based rates. These offers are both an inducement for utilities to act this year and a signal that we want transmission to be able to stand alone as a business capable of attracting and applying capital to provide a public service.

IV.

The prognosis for RTOs is still unclear. This is hard work and the FERC has challenged the industry to respond. The level of activity has been impressive. Some sound RTO proposals will undoubtedly be developed timely and voluntarily. I am not a Pollyanna, however. I am persuaded that there are transmission-owners who will test our commitment to fundamental change by filing incremental or sub-optimal proposals, with lavish but unenforceable promises for future improvements. Moreover, the existing independent

system operators (ISOs) may have concluded, incorrectly I think, that they have no more work to do.

Given what is at stake, I do not believe that the Commission is in any position to ratify proposals that skimp on Order No. 2000's functions and characteristics or to smile approvingly upon RTOs that draw heavy protests because of a lack of public process or which result in balkanization of the market by another name. I do expect that our resolve will be tested beginning October 15 when the first filings are due. Meanwhile, the agency appears to be on its own for the moment. The U.S. Congress remains undecided about the future of the industry. Difficult debates now seem to revolve around the extent to which states or the Commission should exercise oversight over the interstate trade in electricity. The E.U., which is exercising central authority over member nations in opening markets, may realize success more quickly than the U.S., which (despite a strong tradition of central oversight of

interstate commerce) still has no national plan to get to competitive markets, other than what we have provided in Order Nos. 888 and 2000, of course.

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You may take from the U.S. experience and the Commission's current initiatives whatever lessons you wish. Our domestic electricity markets have been evolving toward a competitive model for over 20 years, despite the lack of a precise vision of what the goal is. Regulatory efforts to promote competition have increased in number in recent years and the industry has largely kept pace. In wholesale markets, the end result is becoming clearer: E Pluribus Unum.
Yet, we are still on the frontier of institutional change and the transition may take several years more.

We face challenges that differ from those facing the E.U. Privatization is a peripheral matter, for example. Our small retail customers have been slower

than yours to receive the power (and slower to exercise the power they have) to switch suppliers. But, like the E.U., we too have a fragmented bulk power market and multiple "sovereigns" to coordinate. We too have utilities unwilling to give up market power and other market participants willing to profiteer by this transition. We have regulators and other policymakers who are slow to embrace markets and a pro-competitive model of oversight.

Unfortunately, uncertainty on these key matters is the enemy of investment and planning and, ultimately, efficiency. Our RTO program is designed, first and foremost, to end uncertainty and to achieve a structural transformation that will place U.S. policymakers in a situation where they have to sort out jurisdictional questions, curb market power, get prices right, and establish market rules that will generate real consumer benefits. For these reasons, regulatory (and hopefully, legislative) policymaking must be even

clearer and more unequivocal than it has been to date. I urge you, as I do my American colleagues, to be bold and to persevere. It will be worthwhile.

Thank you.